Amendments to the Specification:

Please replace the paragraph beginning at page 9, line 14, with the following rewritten paragraph:

Figure 5 is a schematic diagram of the MRAM memory cell array 200 illustrating a method for reading the unit cell 100'. When reading the unit cell 100', current is placed on bitline B2 and wordline W2, both of which are coupled to the unit cell 100'. As illustrated in Figure 5, multiple bitlines are not required when reading a unit cell. However, a higher voltage generally is utilized on the wordline W2 than on the related bitline B2. To the facilitate the illustration in Figure 5, the symbol "■" indicates μ-metal and the symbol " " indicates MTJ.

Please replace the paragraph beginning at page 10, line 8, with the following rewritten paragraph:

Figure 7 is a diagram illustrating the characteristic curve 700 of a perpendicular MRAM, in accordance with an embodiment of the present invention. The pinned layer, for example bottom layer, has a fixed magnetic moment that is unchanged under the magnetic field cycle. The magnetic moment of the free layer can be controlled by the magnetic field and has a hysteresis property. The different relative moment orientation between the pinned and free layers shows the different tunneling resistance due to the spin-dependent tunneling effect, and thus the different voltage output or current output. As shown in Figure 7, H and R are indicated by single-ended arrows and perpendicular TMR is indicated by the double-ended arrows.

Please replace the paragraph beginning at page 13, line 1, with the following rewritten paragraph:

The variables a, b, d, s, and t in Equation (2) are shown in Figure 10. In addition, as shown in Figure 10, the symbol "M" indicates magnetization and the symbol "μ" indicates permeability. In Figure 10, the current (I_x and I_y) is illustrated by arrows in each unit cell of

the two shown unit cells. For example, when μ-metal (χ=10,000) with 4,000Å thickness and dimension of 0.1 μm, the spacer between cells is 0.1 μm, r = 0.3 μm, t = 0.4 μm, and the coercive field of free layer is 50 Oe, then the required current in one line is 8 μA. The total required current (x4) is 32 μA. When programming, the metal line has current density of 2×10^4 A/cm^2. Compared to conventional MRAM structures, embodiments of the present invention improve the current density degradation about order of magnitude of 4, based on the χ value of μ-metal.

Please replace the paragraph beginning at page 13, line 8, with the following rewritten paragraph:

Figure 11A is a diagram showing a three-dimensional view of an MRAM array 1100 having a shielding magnet 1102, in accordance with an embodiment of the present invention. Figure 11B is a diagram showing a side view of the MRAM array 1100 having a shielding magnet 1102, in accordance with an embodiment of the present invention. The shielding magnet 1102 prevents magnetic noise from the environment, and buffers the magnetic flux of the μ-metal when programming the unit cells. The shielding magnet 1102 is a magnetic ceramic material (see μ-ceramic in Figure 11A) such as $(MnO)(Fe_2O_3)$, $(ZnO)(Fe_2O_3)$, $(MnO)(ZnO)(Fe_2O_3)$, etc. The resistivity of the magnetic ceramic material generally is in the range of 10^{13} W-cm, which is an insulator matrix. The permeability of these materials ranges around several thousand. For example, if $(MnO)_{31}(ZnO)_{11}(Fe_2O_3)_{58}$, m ranges 1000 ~ 2000 below 200 °C.